

Claims

- [c1] In a metal duct for the transport of high temperature pressurized air, said duct having a layer of insulation wrapped therearound and an insulation shell over said layer of insulation, an improvement comprising:
a cuff of flexible material for wrapping circumferentially around a portion of said duct, thereby creating a void between a portion of said cuff and said insulation shell; said cuff having a hole defined therein, wherein said hole is in communication with said void.
- [c2] The improvement of Claim 1 further comprising:
a pad, having a hole defined therein, positioned on the side of said cuff facing said insulation shell, said hole in said pad being aligned with said hole in said cuff, for purposes of reinforcing the area of said cuff in proximity to said hole in said cuff; wherein said pad is adhered to the inner surface of said cuff.
- [c3] The improvement of Claim 2 wherein said cuff is composed of fiberglass impregnated with a silicon-rubber compound.
- [c4] The improvement of Claim 3 wherein said cuff is com-

posed of multiple plies of said fiberglass-impregnated with a silicon-rubber compound.

- [c5] The improvement of Claim 4 wherein said pad is composed of a silicon-rubber compound.
- [c6] The improvement of Claim 5 wherein said pad had a durometer reading of between 30 and 50.
- [c7] The improvement of Claim 2 wherein a portion of said pad rests against said insulation shell and further wherein the portion of said pad wherein said hole is defined does not rest against said insulation shell, thereby maintaining communication between said void and said hole in said cuff.
- [c8] The improvement of Claim 2 wherein the ends of said cuff join together in a tongue and groove joint when said cuff is wrapped around said duct.
- [c9] The improvement of Claim 2 wherein the cross section of said cuff comprises a raised middle portion having two shoulders on opposite sides thereof.
- [c10] The improvement of Claim 2 wherein said cuff is secured around said duct over a portion of said duct having a circumferential cut through said insulation shell
- [c11] The improvement of Claim 9 wherein said cuff is secured

to said duct with a heat-resistant tape wrapped around said duct and said shoulders of said cuff.

- [c12] The improvement of Claim 11 further comprising:
 - a manifold block disposed on said cuff adjacent said hole defined in said cuff, said manifold block defining a "Y" shaped conduit therein; and
 - a cap, disposed on the top of said manifold block and secured thereto, said cap defining two channels therein for capturing of a pair of temperature-sensitive wires.
- [c13] The improvement of Claim 12 wherein the leg of said "Y" shaped conduit exits the bottom of said manifold block and is in communication with said hole defined in said cuff and further wherein the arms of said "Y" shaped conduit exit the top of said manifold block opposite said cuff.
- [c14] The improvement of Claim 13 wherein said cap holds said pair of temperature-sensitive wires over said exit holes defined in the top of said manifold block.
- [c15] The improvement of Claim 13 wherein said manifold block and said cap are composed of a silicone-rubber compound.
- [c16] The improvement of Claim 13 wherein said manifold block and said cap are composed of a metal.

- [c17] The improvement of Claim 14 wherein said cap defines one or more holes therein for accepting one or more posts defined on the top of said manifold block for securing said cap thereto.
- [c18] The improvement of Claim 12 wherein said manifold block has a curved bottom having a radius matching the outer radius of said raised portion of said cuff.
- [c19] The improvement of Claim 12 where the bottom surface of said manifold is contoured to match the contour of the outer surface of said cuff.
- [c20] The improvement of said 19 wherein the contoured bottom of said manifold block has a raised portion for accepting the raised middle portion of said cuff and two shoulders which rest against the shoulders defined on said cuff.
- [c21] The improvement of Claim 20 wherein said manifold block further comprises two wings defined along the edges of said manifold block adjacent said shoulders.
- [c22] The improvement of Claim 21 wherein said manifold block is secured to said cuff by wrapping a heat-resistant tape around said duct, said cuff and said wings defined on said manifold block.

- [c23] The improvement of Claim 15 wherein said manifold block has a durometer reading of between 65 and 85 and wherein said cap has a durometer reading of between 30 and 50.
- [c24] In a metal duct for the transport of high temperature pressurized air, said duct having a layer of insulation wrapped therearound and an insulation shell over said layer of insulation, an improvement comprising:
a cuff of flexible material for wrapping circumferentially around a portion of said duct, thereby creating a void between a portion of said cuff and said insulation shell; said cuff having a hole defined therein, wherein said hole is in communication with said void;
a pad, having a hole defined therein, positioned on the side of said cuff facing said insulation shell, said hole in said pad being aligned with said hole in said cuff, for purposes of reinforcing the area of said cuff in proximity to said hole in said cuff; wherein said pad is adhered to the inner surface of said cuff;
a manifold block disposed on said cuff adjacent said hole defined in said cuff, said manifold block defining a "Y" shaped conduit therein; and
a cap, disposed on the top of said manifold block and secured thereto, said cap defining two channels therein for capturing of a pair of temperature-sensitive wires.

- [c25] A method of improving the temperature detection capabilities of a sensor comprised of a pair of heat sensitive wires for detecting leaks of hot air from a duct, said duct being wrapped with a layer of insulation covered by a silicon-rubber insulation shell comprising the steps of: making a circumferential cut in said insulation shell; securing a cuff having a raised portion over said cut in said insulation shell, said raised portion of said cuff creating a void between said cuff and said insulation shell, said cuff defining a hole therein in communication with said void; securing a manifold block over said hole defined in said shell, said manifold block defining one or more conduits therein in communication with said hole defined in said cuff; and securing one or more heat sensitive wires at the ends of said one or more conduits opposite said cuff.
- [c26] The method of Claim 25 wherein said cuff and said manifold block are composed of a silicon-rubber compound.
- [c27] The method of Claim 25 wherein said step of securing one or more heat sensitive wires further comprises the step of: securing a cap to a surface of said manifold block wherein said one or more conduits exit said manifold

block, said cap having one or more channels defined therein for accepting said one or more temperature sensitive wires, said cap holding said one or more temperature sensitive in place over the ends of said one or more conduits.

- [c28] The method of Claim 25 wherein said cap is secured to said manifold block with a snap fitting.
- [c29] The method of Claim 25 wherein said cuff is secured to said duct using a heat-sensitive tape.
- [c30] The method of Claim 25 wherein said manifold is secured to said cuff using a heat sensitive tape.